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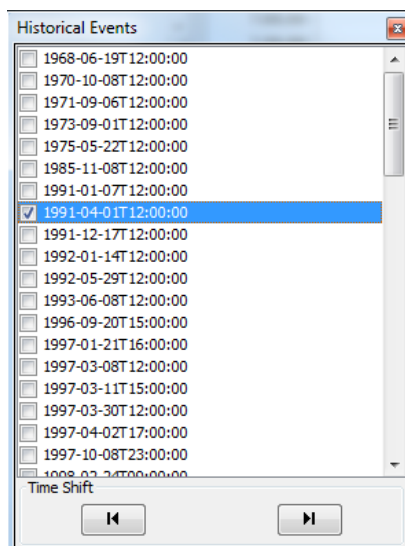
2 New features

New features designed for NWS and BPA are listed in the table below. To configure the new enhancements, please see the configuration update document

FB	JIRA	Description
FB 143	FEWS 11272	Allow mods to be made to a single ensemble member
FB 1039	FEWS 11283	Add scroll bar to Historical Events Pull Down menu
FB 1040	FEWS 11284	Ordering Historical Events
FB 201	FEWS 11281	Develop an MC-MC synch monitoring capability in AI.
FB 509	FEWS 11278	Different plots in Plots and Modifier Display because of valid time
FB 531	FEWS 10661	Shift values in time" option of modifying values in the table of a TSCHNG mod leaves missing values
FB 1465	FEWS 11274	Differences in PeakFlow module
FB 1467	FEWS 10652	Nr of parameters changing in Modifier Display
FB 1468	FEWS 11277	Ability to modify parameters expressed as tables in Modifier Display
FB 1594	FEWS 11881	New IFD icons

2.1 Historical events are now sorted by name instead of time (FB1039, 1040).

The Historic events 'menu-popup' in the TimeSeries Dispaly is replaced by a separate small dialog, similar to the 'timeseries visibility dialog'.



The menu button opens a separate dialog in which historic events are visible and searchable like in filters. This directly solves the 'scrolling' problem in case of many historic events. Multiple historic events can be selected from this dialog and will be added to the plot. With the left/right arrows one can move to other the historic events.

2.2 MC-MC synch monitoring capability in AI (FB201)

The Admin Interface now shows information about the MC workflows, including the MC-MC synch. The following queries for monitoring failures of MC tasks are executed:

```
SELECT tmp3.ownerMcId, tmp3.workflowId, tmp3.lastTaskRunStatus,
tmp3.taskLastRunTime,
  tmp4.taskRunStatus AS unsuccessfulTaskRunStatus, COUNT(tmp4.taskRunStatus)
AS unsuccessfulTaskRunCount
FROM (
SELECT tmp1.ownerMcId, tmp1.workflowId, tmp2.taskRunStatus AS
lastTaskRunStatus, tmp1.taskLastRunTime FROM (
SELECT t1.ownerMcId, t1.workflowId, MAX(t2.taskDispatchTime) AS
taskLastRunTime
FROM (
SELECT t.ownerMcId, t.workflowId FROM Tasks t
WHERE (t.workflowId LIKE 'MC:%' OR t.workflowId LIKE 'MC_%') AND t.ownerMcId
IN (SELECT mcId FROM Sequences)
) t1 LEFT JOIN (
SELECT t.workflowId, t.ownerMcId, tr.taskDispatchTime FROM Tasks t, TaskRuns
tr WHERE tr.taskId=t.taskId AND NOT tr.taskRunStatus IN ('R', 'P')
) t2
ON t1.ownerMcId=t2.ownerMcId AND t1.workflowId=t2.workflowId
GROUP BY t1.ownerMcId, t1.workflowId
) tmp1 LEFT JOIN (
SELECT t.workflowId, t.ownerMcId, tr.taskRunStatus, tr.taskDispatchTime FROM
Tasks t, TaskRuns tr WHERE tr.taskId=t.taskId AND NOT tr.taskRunStatus IN
('R', 'P')
) tmp2 ON tmp1.workflowId=tmp2.workflowId AND tmp1.ownerMcId=tmp2.ownerMcId
AND tmp1.taskLastRunTime=tmp2.taskDispatchTime

) tmp3 LEFT JOIN (
SELECT t.workflowId, t.ownerMcId, tr.taskDispatchTime, tr.taskRunStatus FROM
Tasks t, TaskRuns tr WHERE tr.taskId=t.taskId AND NOT tr.taskRunStatus IN
('R', 'C')
) tmp4
ON tmp3.ownerMcId=tmp4.ownerMcId AND tmp3.workflowId=tmp4.workflowId
GROUP BY tmp3.ownerMcId, tmp3.workflowId, tmp3.lastTaskRunStatus,
tmp3.taskLastRunTime, tmp4.taskRunStatus
ORDER BY ownerMcId, workflowId
```

Result:

OWNERMCID	WORKFLOWID	LASTTASKRUNSTATUS	TASKLASTRUNTIME	UNSUCCESSFULTASKRUNSTATUS	UNSUCCESSFULTASKRUNCOUNT
EANEMC00	MC:MarkedRecordManager	C	2014-10-23 16:00:06	T	2
EANEMC00	MC:RollingBarrel	C	2014-10-23 15:45:08	T	1
EANEMC00	MC:Synchronisation	C	2014-10-23 16:05:01	F	4
EANEMC00	MC:Synchronisation	C	2014-10-23 16:05:01	T	1

The result is send to admin page as follows:

- only show for own mclid,
- when lastTaskRunStatus = 'C' just show taskLastRunTime.
- if not, show lastUnsuccessfulTaskRunTime and count in between brackets
- color red if lastRunTime older than 24hrs

System Status

Live System Status

[Refresh](#)

Currently Queued Task Runs:	0
Currently Executing Task Runs:	0
Overall MC Status:	OK
Status of FSSs:	
FSS: FSS00	0
FSS: FSS01	0
Status of Remote MCs:	
MC: MC01	OK
Status of FSSs on Remote MC:	
FSS: FSS00	0
FSS: FSS01	0
Health of MC modules:	
FSL.Listener	OK
OCL.Listener	OK
Synch.Listener	OK
Synch.Runner	OK
Synch.TaskListener	OK
SysMon.Heartbeat	OK
SysMon.Listener	OK
SysMon.Monitor	OK
TM.Chaser	OK
TM.Launcher	OK
TM.LogProcessor	OK
Status of MC workflows:	
MCMarkedRecordManager	OK, 1m 42s
MCRollingBarrel	OK, 10m 43s
MCSynchronisation	running, 42s
MCSystemAlerter	failed (1 of 3 runs), 28m 41s
Active OC Sessions:	2
Log Table Size:	70192
MC Version:	MasterController:development_2014.03 (50335)
Database:	OK
JMS:	OK
Last status check:	14/01/2015 17:37:46 GMT

Documentation is added to:

<https://publicwiki.deltares.nl/display/FEWSDOC/Admin+Interface++System+Status++Live+System+Status>

2.3 Different plots in Plots and Modifier Display because of valid time (FB509)

The data in the Modifier Display is by design independent of the valid time of the modifier. Data in Plots and in processing modules are. To warn the forecaster that a modifier as shown in the Modifier Display is only partly valid, the mod colours yellow now in the summary section. See screenshot.

Mod type	Description	Summary	Locations	Start	End	Valid Time	User	Creation ti...	Active	Del...	Copy
MAT TS Change	MAT_NFNW 1L	MAT NFNW 1L : Add 5.0	NFNW 1L	09-25-1948 06:00:00	09-30-2011 00:00:00	09-28-2011 00:00:00	Lemans	02-06-2015...	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

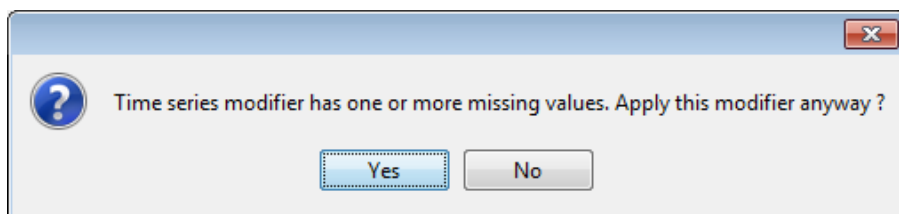
Create mod Snow-17 SAC-SMA UNIT-HG MAT TS Change MAP TS Change Re-run

End time of the modifier in this example is 9-30, valid time is 9-28 and T0 is 09-29. You see the whole modifier in the Mod Display, but in the other plots and transformations, the adjustments between 29 and 30 are not used anymore because valid time < T0.

2.4 "Shift values in time" option of modifying values in the table of a TSCHNG mod leaves missing values (FB531)

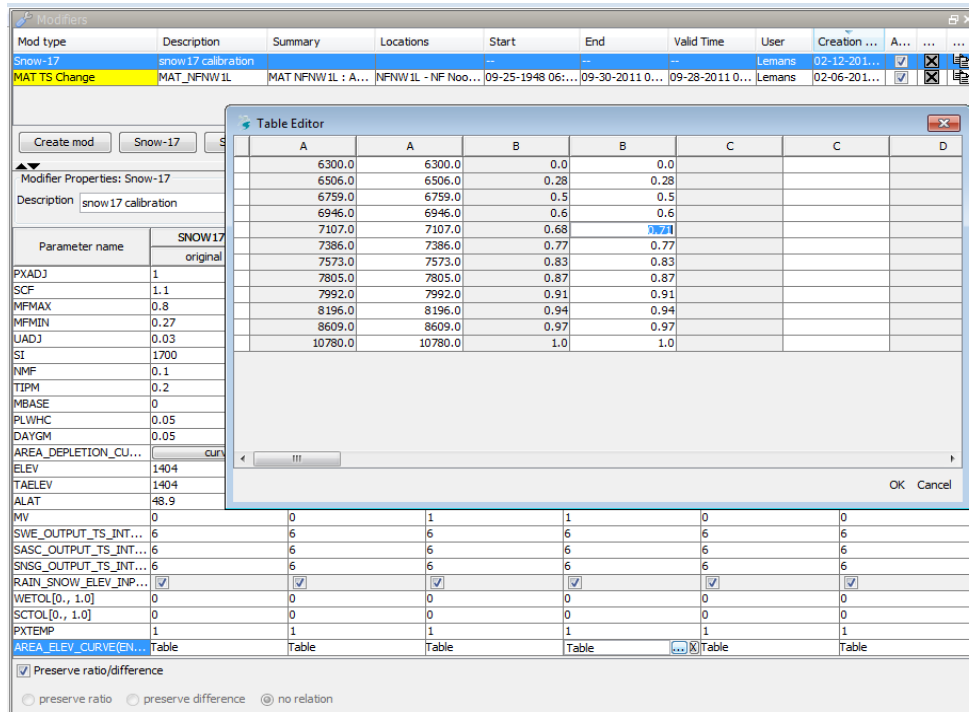
in FogBugz case 531, there is a deficiency outlined with the TS Shift mod where creating such a mod leaves "empty" cells of time series data in the original timesteps before the shift. The user must manually handle the empty cells before applying the mod or risk downstream segments from throwing "missing time series" errors due to the shift. We initially thought the "shift mod" as stated in FB was related to the green arrows in the timeseries modifier. When selecting operation 'timeseries', one can shift the whole timeseries between start and end by using these arrows. This still works fine. However, a more manual approach is to use the right click option in the table in the Mod display, and click option "shift values in time". Here you can choose the time shift for the selected/highlighted values

To warn the user that a missing value is generated, a new pop up window is introduced when hitting 'Apply'. See below. This warning only appears if the modified timeseries has missings when the original timeseries has non-missings only. You don't get the warning for ignoreTS and setMissing modifiers/operations.



2.5 Modify parameters expressed as tables in Modifier Display (FB1468)

Within the calibration applications, one can modify parameters in tables, like for the Area Elevation Curve. Please note to make changes in the with columns. The grey columns show original values. Do not enter any value in the empty tables.



2.6 New Peakflow transformation

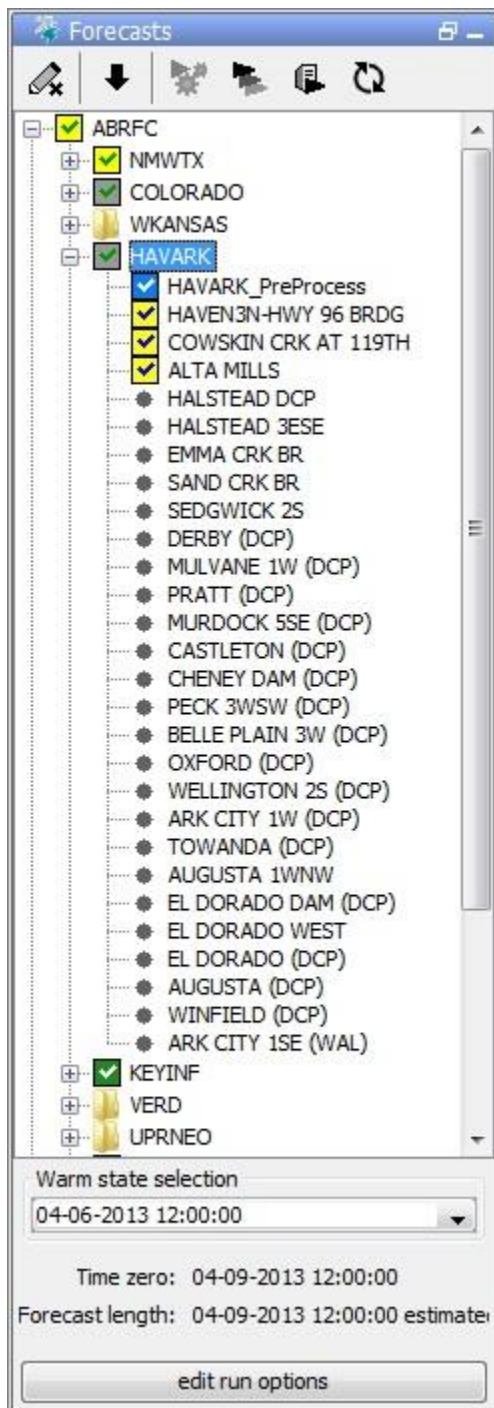
The peakflow algorithms in FEWS are updated and moved to the Transformation module, to better reflect the functionality in the NWSRFS Peakflow operation.

The new function 'maximumAroundPeak' finds for each peak time from (observed) peak series a maximum value in the (simulated) input series. The maximum value is searched in a period configured with a time window. The function creates always one output series with maximum values, and 3 optional output series with maximum, value and time difference, all stored at peak time. With existing other functions, the statistics like RSME can be derived.

See for more information the FB ticket or the config update document.

2.7 New IFD Icons

New status icons in the IFD panel are introduced, see screenshot and descriptions below.



We still have the green and blue boxes with the white checkmarks. They represent a server (green) or local (blue) run, with the same T0 and state settings as shown in the IFD.

In the 2014.01 release you do not see an icon at all if the T0 in the IFD is different than the TO of the approved run in the database. Or if the state settings in the IFD are different than the state settings of the approved run in the database. The latter was the issue for PI service runs.

Within 2014.02 you will see multiple icons for the various situation:

- A grey box with either a green or blue check mark. A grey box means the TO of the approved run in the database is different than the one in the IFD. The check mark indicates whether the approved run is a local or a server run.
- A yellow box with either a green or blue check mark. A yellow box means the state settings of the approved run in the database are different than the settings in the IFD. For example a different warm state, warm state search interval, or forecast length. The check mark indicates whether the approved run is a local or a server run.

3 Some general enhancements and sensitivity warnings

Some of the general enhancements described in the pdfs with new features will affect the CHPS systems as well.

3.1 Stricter Configuration Check

Again, even stricter as in previous versions, Config.WARN messages have been 'upgraded' to Config.ERROR messages. When they appear at start up of Delft-FEWS they have to be resolved before the workflows run properly. Reason for stricter design is to prevent undesired related issues, which are often difficult to debug.

An example is the error when having duplicate accelerators short cuts in your Explorer.xml. If you get those errors, open your Explorer.xml and change the duplicate accelerator in the explorerTask to an unique one.

Another error is about duplicate moduleInstanceId's in one workflow. If you get those errors, search the referenced workflow in the Config/WorkflowFiles directory and check if there are duplicate moduleInstances listed. In the cases we have seen so far, those duplicates were invalid and had to be removed from the workflow.

3.2 Stricter behaviour in ModifierTypes

This timeseries filter in the modifierTypes determines which time series can be modified. The timeseriestype however was always ignored in the code. We fixed this in the current release. During alpha testing we found a problem with missing modifiers for a node selection, because the timeseriestype was incorrect. For example the following configuration:

```
<timeSeriesModifier id="tschng_STG" name="tschng_STG">
  <timeSeries>
    <moduleInstanceSetId>QIN</moduleInstanceSetId>
    <valueType>scalar</valueType>
    <parameterId>STG</parameterId>
    <locationSetId>Gages_AK</locationSetId>
    <timeSeriesType>simulated forecasting</timeSeriesType>
    <timeStep unit="hour" multiplier="6"/>
  </timeSeries>
  <defaultStartTime>start run</defaultStartTime>
  <defaultEndTime>end run</defaultEndTime>
  <defaultValidTime/>
  <resolveInWorkflow>false</resolveInWorkflow>
```



```
<resolveInPlots>true</resolveInPlots>
<createContinuousModifiers>true</createContinuousModifiers>
</timeSeriesModifier>
```

In this particular there were no suitable timeseries found anymore in the plots which can be modified by this timeseries. Simple fix is to change the type external historical (if the plots also have external historical) or remove the tag.

3.3 Running ensembles in a loop

If your application runs ensembles in a loop, you have to verify your global.properties have the following option:

```
runInLoopParallelProcessorCount > 1
```

If this is the case, messages of the following type may appear while running these ensemble workflows.

Config.Error: An ensemble loop can only write ensemble time series. Time series sets with configured main are read-only within an ensemble loop.


An additional check has been added:

Config.Error: Every item in a workflow.xml file should write to different time series.

If these messages occur, you have to improve your configuration accordingly.

3.4 Sum selection in table of time series display

In the 2014.01 release it was already possible to show column statistics in the tables. Right now the statistics are updated when selecting a subset of the column.

					
GMT	A	A	A	A	A
	MAT (DEGC)	MAT (DEGC)	MAT (DEGC)	MAT (DEGC)	MAT (DEGC)
	NFNW1G - NF Nc NFNW1G	NFNW1G - NF Nc NFNW1G	NFNW1G - NF Nc NFNW1G	NFNW1G - NF Nc NFNW1G	NFNW1G - NF Nc NFNW1G
	NFNW1_MergeM [1]	NFNW1_MergeM [1]	NFNW1_MergeM [1]	NFNW1_MergeM [1]	NFNW1_MergeM [1]
Date	09-20-2011	09-21-2011	09-22-2011	09-23-2011	09-24-2011
Day	Tue	Wed	Thu	Fri	Sat
Mean	5.774	7.677	9.719	11.471	11.856
Sum	17.322	23.031	29.156	34.414	35.568
Min	2.287	4.249	7.626	9.158	8.786
Max	10.051	11.203	11.367	14.623	15.150
00	4.984	7.579	10.163	10.633	11.632
06	2.287	4.249	7.626	9.158	8.786
12	10.051	11.203	11.367	14.623	15.150
18	14.609	15.468	13.725	17.696	18.841

3.5 Show or hide default modifiers when selecting Topology nodes.

Some options are added to the Topology.xml to show or not show certain modifiers.

Default ModifierId

Optional element to define a default modifier for a node. When a node is selected and a default modifier is defined the section in the modifiers display in which a modifier can be created will automatically initialize to the defined default modifier.

onlyAllowEditDefaultModifier

This element will enable that if a default modifier is configured that only the default modifier can be edited, not other modifiers.

visibleModifierGroups

If this option is not configured, than all applicable modifiers can be used. With this option it is possible to restrict which modifier groups can be used.

4 Upgrade of firebird library for Linux

One of the Firebird libraries, a third-party shared library in the fews bin directory called libicudata.so.30, causes a warning message when starting the FEWS application:

Starting application ...

Java HotSpot(TM) Server VM warning: You have loaded library /data1/FEWS-Projects/FEWS-bins-patches/bin.50595.2014.02.stable/libicudata.so.30 which might have disabled stack guard. The VM will try to fix the stack guard now.

It's highly recommended that you fix the library with 'execstack -c <libfile>', or link it with '-z noexecstack'.

Applying the execstack program as recommended, will make this message go away.
Go to your fews bin directory as user *fews* and run:

```
execstack -c libicudata.so.30
```

While it is very unlikely this would ever cause trouble, getting rid of it using the recommended solution is straightforward.

5 Solved bugs

Solved bugs for NWS and BPA are listed in the table below.

FB	JIRA	Description
1591	12077	Elevation/stage button seem broken
1366	11433	Search and Select Forecast description is always blank
1544	12119	Plots only display observed timeseries initially
1622	12076	QPC Modifier Display bug
1601	12025	ThresholdIcons don't work correctly anymore
714	11907	Schematic status displays –problem with threshold units
1546		Cant' Veritcally Drag in Plots with Both Horizontal/Veritcal Zoom Enabled
1584	11906	Unexpected ColdState Created Very Large TaskRunProperties in TaskRunCompletions Table
1579	11851	SA/OC's Running Approved Forecasts Multiple Times When Using <enableOriginalButtons>
1582	11843	PI Service getSystemTime() Doesn't Report System Time
1569	11825	MCRcovery Tool --fix_sequences Doesn't Filter PI Service TaskIDs Properly
1549	11790	Issues with direct database access. Improved message added to show why "Cache belongs to other database"
1534	11716	JBoss TCP Connection Leaks from FEWS Clients
1536	11624	CHPS OC error - isDeleted()
1366	11433	Search and Select Forecasts description field is always blank
	11228	Ensemble post processing: Error correction through historical simulated and observed timeSeries (For BPA)
1312	11450	Calibration PEAKFLOW Selection Bug 1/1/1970 0 CFS
531	10661	"Shift values in time" option of modifying values in the table of a TSCHNG mod leaves missing values
550	10689	Modifier Properties Window (Date/Time changes)